

Title (en)

OPTICAL WAVEGUIDE ENVIRONMENTAL SENSOR AND METHOD OF MANUFACTURE

Title (de)

OPTISCHER WELLENLEITERSENSOR UND HERSTELLUNGSVERFAHREN

Title (fr)

CAPTEUR ENVIRONNEMENTAL À GUIDE D'ONDES OPTIQUE, ET PROCÉDÉ DE FABRICATION

Publication

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Application

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Priority

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Abstract (en)

[origin: US7343074B1] An optical waveguide environmental sensor is provided that is capable of detecting a target gas or liquid in the ambient environment in an advantageously short period of time. The waveguide is preferably in the form of an optical fiber having a cladding that contains a photonic band gap structure which in turn envelopes a light conducting, hollow core portion. The cladding further includes at least one elongated side opening that preferably extends the entire length of the fiber and exposes said hollow core portion to the ambient environment, which provides broad and nearly immediate access of the core portion to gases and liquids in the ambient environment, thereby minimizing sensor response time. The ambient gases or liquids filling the hollow core portion and elongated opening function as a ridge and slab, respectively, of an optical ridge waveguide that effectively supports at least one bound optical mode.

IPC 8 full level

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CPC (source: EP US)

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